CHAPTER-II

REVIEW OF RELATED LITERATURE
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2.0 Introduction

Acquisition of present knowledge becomes easier by the help of the past knowledge. Therefore, past knowledge is considered as the backbone of the present knowledge. Review of related literature is of utmost importance for any research work. It goes to mean studying, analyzing and evaluating the relevant studies, articles, encyclopedias, research reports, abstracts, newspapers, books and so on.

In order to have a critical and in depth evaluation of previous research, we need reviews. It is nothing but a summary and synopsis of a particular area of research. Review of related literature widens one’s knowledge in the specific area of research. It helps the researcher to know how much work have already been done in that area as well as how much is left to do in the same. The acquisition of current knowledge is also possible by its help. Moreover, review of related literature guides the researcher to formulate the objectives and hypotheses of the study. Avoidance of unnecessary duplication is done by its help. The particular methodology including population, sample, tools of data collection, statistical techniques for analysis and interpretation of data etc to be adopted for one’s study become easy if the researcher went through the related literatures. It also helps in delimiting one’s study.

Since the research problem under investigation was, ‘Perception and Attitude of College Students towards Computer Education in the Nagaon District of Assam:
A Study’ hence, the aim of this chapter was to review the studies already conducted on students’ perception and attitude towards computer education. Thus, attempts were made by the investigator to review the already conducted studies on different issues related to it. The reviews were classified into three broad categories namely,

- Studies conducted at abroad
- Studies conducted in India
- Studies conducted in Assam

2.1 Studies conducted at abroad

A large number of international studies done on the perception and attitude of different categories of students towards computer education were found. A few of such studies are mentioned below.

Breakwell, Glynsis.M. et.al. (1986) in their study on ‘Attitudes to new technology in relation to social beliefs and group memberships: A preliminary investigation’ tried to see the multipurpose uses of computer among children found that though the main use of home computers by children was playing games but there was still some more sophisticated uses of computers; in their study they found that a substantial proportion of children also used their home computers for non-game playing purposes.

Marshall, Jon. C, et.al. (1986) conducted a survey to know the attitude and knowledge towards computer among rural and urban students and educators. The survey was titled ‘Educational Computing in Rural Vs Urban Settings’. The purpose
of the study was to know the disparities between urban and rural students regarding use, access and attitudes towards computer.

The results of the survey showed that twice the proportion of rural and urban educators indicated that their students daily spent times on school computers. Rural respondents had significantly more positive computer attitudes than their urban counterparts. Regarding computer knowledge, the male students showed higher knowledge than their female counterparts. No major difference was found regarding the attitudes of male and female students, but those who had more computer knowledge showed slightly more positive attitude than those who had not.

**Martin, Heller & Mahmoud.** (1992) studied the attitude towards computer of two samples of 8-12 years old American and Soviet children in their study ‘American and Soviet Children’s attitudes towards computers’.

The study revealed that children from both the countries showed similar and positive attitudes towards computers. The study also showed significant gender differences in the drawing of computer users. Boys mostly drew male figures, while the girls mostly drew female figures, which indicated that draw images by children in computer reflected their own gender.

**Robetson.S.et.al.** (1995) made a study titled ‘Computer Attitudes in an English Secondary School’ in order to find out the attitude of secondary school students and teachers towards the use of computers.

The results showed that the boys possessed more favourable attitude than girls towards computer. The girls had the tendency to work less with computers than
boys. While comparing the attitudes of students and teachers, it was found that students had more positive attitudes than the teachers regarding the use of computers.

Al-Jabri, Ibrahim. M.L. (1996) in his study on ‘Gender Differences in Computer Attitudes among Secondary School Students in Saudi Arabia’ mentioned that the main objective was to study the gender differences among secondary school students of Saudi Arabia regarding various attributions of computer attitude. The samples consisted of 187 secondary school students of Saudi Arabia and of them 181 were males and 106 females during the session 1994 and in selecting sample, the investigator used simple random sampling technique. For collecting data, the investigator used a 30 item ‘Computer Attitude Scale’ (CAS) by Loyd and Gressard.

The study concluded that regarding the overall computer attitude, there existed difference between male and female students, regarding computer anxiety, male students were less anxious than females to learn and use computer, male students showed greater confidence than their female counterparts in learning and using computer as well as male students liked to learn about and working with computer more than female students.

Shashaani, Lily. (1997) conducted a study on ‘Gender Differences in Computer Attitudes and Use among College Students’ by taking 202 undergraduate students of private urban university of Pittsburg.
The study’s results indicated that male scored higher than females regarding liking to learn about computers, enjoying work with computers and considering computer interesting. With regard to confidence, females felt more uncomfortable with computers and feared more. They believed computer as hard to learn and had less confidence to deal with than their male counterparts.

Ray, Charles .M. et.al. (1999) in their study ‘Men’s and Women’s attitude towards Computer Technology: A Comparison’ conducted on 62 students of Business-Communication. It found that there was a significant difference between the mean levels of males and females. Females tend to show more positive perception towards computer. The study also revealed that males felt less comfortable with technology than females.

Shafi, Fahad. Almahboub. (2000) in the study on ‘Attitudes towards Computer Use and Gender Differences among Kuwaiti Sixth-grade Students’ mentioned the objectives like to study students’ attitude towards computers, to study the differences in attitude towards computer between boys and girls, to study the relationship if existed between students’ attitude towards computer and school and was it same for boys and girls, to study the relationship if existed between students’ attitude towards computer and motivation and was it same for boys and girls, to study the relationship if existed between students’ attitude towards computer and study habits and was it same for boys and girls, to study the existing relationship between students’ attitude towards computer and empathy and was it same for boys and girls, to study the existing relationship between students’ attitude towards
computer and creative tendencies and was it same for boys and girls and to study the differences between students’ attitude towards computer having home computer and those had not.

The investigator took a sample of 10 middle schools (5 boys and 5 girls) of the state of Kuwait at the age of 11-13 years by adopting cluster sampling technique. The computer attitude questionnaire (CAI) of Likert-type was used for data collection.

The study concluded that Kuwaiti students showed positive attitude towards computer, no significant difference was found between the attitude of boys and girls towards computer, girls were more positive than boys, there existed significant correlation between students’ attitudes towards school and computer, it was a very weak positive correlation. Moreover, no statistically significant difference was there in the correlation between boys’ and girls’ attitudes towards school and computer, there was significant correlation between students’ attitude towards computer and motivation, but it was not significant between boys’ and girls’ attitudes towards the same, low positive correlation was found between students’ attitude towards computer and study habits, but was found not significant between boys’ and girls’ attitudes toward the same, low positive correlation was found between students’ attitude towards computer and empathy, but no significant difference was found between boys’ and girls’ attitudes towards the same, moderately positive correlation was found between students’ attitude towards computer and creative tendencies, but no significant difference was found between boys’ and girls’ attitudes toward the
same and significant difference was found between students’ attitudes having home computer and those who had not, students having home computer showed positive attitudes than those had not.

**Kilic, Gulsen. Bagci.** (2001) conducted a study on ‘Descriptive study on students’ attitudes toward computers and attitudes toward communicating on computers in an elementary Science methods course’ by taking 85 students as sample. The investigator used a survey developed by Mitra (1998) to collect data and data were collected on two groups- pre-test group and post-test group.

The results of the study revealed that telecommunication technologies used in the course did not affect the students’ attitude towards communicating on computers. Both male and female students had positive attitude towards computers and the results remained unchanged in both pre-test and post-test.

**Dalwadi, N.** (2001) conducted a research study on ‘Development of CAI in Science for students of Standard IX’ with the objective to study the utility of Computer- Assisted Instruction for achievement of students.

The study concluded that CAI was found to be effective for class IX students as individualized instructional techniques. Students were found to have positive opinions towards development of CAI, students gave favourable opinions regarding interest, mode of presentation, content clarity and questions asked in the CAI.

**Shashaani, Lily. & Khalili, Ashmed.** (2001) in their work on ‘Gender and computers: Similarities and differences in Iranian college students’ attitudes toward computers’ mentioned the objectives like to find out whether gender matters
regarding the attitude towards computer, to find out if any difference existed between male and female students regarding attitude towards computer etc. The study was conducted on 375 Iranian undergraduate students.

The results of the study revealed that there existed no significant gender difference and both male and female students wanted to learn more about computer and enjoyed working with it. Although on each question, the score was higher for males than females, but the difference were very negligible.

**Dickhauser, Oliver., & Pelster, Joachim. Stiensmeier.** (2002) conducted a study with the objectives to test the computer-specific self-concept of ability to determine the expected success and perception of computer work, whether favourable computer attributions helped to enhance intensity of using computer etc by taking 100 males and same number of females from University of Germany.

It reported that favourable attributions of one’s success or failure of working in computer lead to develop high self-concept ability. Moreover, people’s self-concept helped to determine how they form their computer-specific expectations and formed their perceptions regarding use of computer in specific situations.

**Stephens, D., & Creaser, Claire.** (2002) conducted a study on ‘Information Science Student IT experience and Attitudes towards Computers: Results of a Five Year Longitudinal Study’. The main objectives of the study were to study the attitude of students towards computer, to study the relation between computer experience and computer attitude, to study the significant difference in attitude between male and female students. The sample comprised of 298 first year
undergraduate students of Information Science at Loughborough University and for selecting students, purposive sampling technique was adopted. For collecting data, a self-developed questionnaire was used.

The study found that males were more positive in the attitudes towards computer than females. Moreover it also revealed that there was no significant difference found regarding the attitudes concerning social aspects of computers between males and females, the respondents having more experiences with computers were found to have more positive attitudes towards computers.

**Yau, Hon.Keung., & Cheng, Alison. Lai. Fong.** (2002) conducted a study with the objectives to know the level of confidence of students in using technology and to study the difference in the level of confidence in using technology. The sample comprised of 211 students of one university of Hong Kong during 2000-01. Convenient sampling technique was used. The research tool was one self-developed questionnaire.

The study revealed some results like moderate level of confidence in using various technologies among students, male students’ more confidence in using technologies for learning than the female students, both male and female students’ interest to learn technology for learning. The students reported that their university provided computer, laptop, and different software for using in their campus. Moreover, students used various technological gadgets for their learning so that they could build their confidence.
Daigle, R.J. (2003) conducted a study by taking a sample of 191 (131 traditional, 60 non-traditional) students enrolled in similar junior-level courses at three universities in order to study computer attitudes by using a computer attitude scale. Respondents were classified on the basis of age, demographic variations etc. The results of the study showed that students who had previous working experiences with computer were more positive towards computer. Moreover, the non-traditional students were seen to be more intimated with computer than the traditional ones.

Isman, Aytekin et al. (2004) in their study on ‘Attitude of students towards computer’ selected fifty five graduate and undergraduate students registered in courses during 2002-03 school year in Eastern Mediterranean university. The study made use of descriptive survey method and a questionnaire to collect data.

The study found that students gave importance to computers as a part of their life. In addition to that, a high percentage opined that there were positive attitude towards computers because of having the quality to use as a tool to organize life efficiently. Some students showed unconsciousness about computer because of not having particular education, encouragement and facilitative environment.

Usun, Salih. et.al. (2004) conducted the study, ‘Undergraduate Students Attitudes on the Use of Computers in Education’ on 156 undergraduate students belonging to the Departments of Educational Sciences and Computer and Educational Technologies of Educational Faculty at Canakkale Onsekiz Mart University of Turkey. The main objectives of the study were to determine the
undergraduate students’ attitudes towards the use of computers in the field of education, to study the differences in attitudes if any between the two targeted groups regarding the use of computers in education etc. The investigators developed questionnaire to collect data.

The results of the study showed that the undergraduate students had positive attitudes towards the use of computer in education and they strongly believed it as an individualized learning tool. Moreover, there existed difference between the attitudes of both the groups and comparatively students belonging to Computer and Educational Technology Department had more positive attitudes than the other group.

Hahne, A.K. et al. (2005) in their study on ‘Attitude towards computer-based learning determinants as revealed by a controlled interventional study’ concluded that attitude towards computer-based learning was not good. The programme quality was rated ‘average’ by the samples as they were not fully satisfied with it. Learning outcomes were found similar between the control group and students using computer-based learning (CBL). Students favoured mostly self study.

Kimberly, V. Hale. (2005) published an article on ‘Gender Differences in Computer Technology Achievement’ and its aim was to know how students differed in their achievement by gender regarding computer. The study was conducted on 549 students from an Exploration of Technology class from a Central Georgia middle school winter semester, 2004. It was a casual-comparative study done with the help of 10 multiple –choice questions used for the pre-test and post-test.
The results of the study indicated that there were gender differences regarding the animation module used for pre-test and post-test. The females showed high achievement in the module than females. The students also responded positively towards television broadcasting module and they reported that they wanted to learn how to write, produce, and record news broadcasting.

**Tengku, F.** (2005) published an article on ‘Gender Differences in Computer Attitudes and Skills’ with the objectives to study the attitude and skill of students regarding the use of computer and to know the differences between boys and girls in their attitude and use of computer. The study was conducted on 554 students from the district of Kubang Pasu, Kedah. The main findings of the study were that students showed positive attitude towards technology, as they stated that they felt comfort in dealing with it. Most of the students liked to work with computer and more than 75% of students had confident to handle computer. Though students had positive attitude towards computer, they were not very skilled in computing. Girls showed more confidence to handle computer than boys. Despite showing more confidence, the girls showed lower level of computer skills than boys.

**Sarniene, Diana. et.al.** (2005) in the study on Students’ ‘Attitude towards Computer’ concluded that students’ computer literacy was relatively strongly affected by the emotional and motivational relationship with a computer. Students who formed a positive contact with a computer usually demonstrated higher computer literacy level, whereas students expressing a negative attitude were of lower computer literacy level.
Appianing, Joseph. (2006) wrote an article on ‘Gender Differences in College Students’ Perceptions of Technology-Related Jobs in Computer Science’ and the main objectives of the article were to study the difference between male and female college students regarding their values towards computer technology, to study the difference between male and female college students regarding their interests in pursuing degree in computer technology and to study the difference between male and female college students regarding their expectations of success in the field of computer technology etc. The investigator by using purposive sampling took 200 students from the Midwest University, USA as sample. For collecting data, the investigator used a questionnaire called VIES (Value, Interest and Expectations for Success).

The study concluded that male students gave higher value to computer technology field than their female counterparts, male students had higher expectations for success in the field of computer technology than the females and there was no significant difference between the male and female college students’ perceptions based on academic major.

Kay, Robin. (2006) in the study on ‘Addressing gender differences in computer ability, attitude and use: The laptop effect’ by taking 52 pre-service teachers from a variety of cultural backgrounds using descriptive survey method and self-structured scale concluded that females had more positive attitudes in self-efficacy and behavioural attitudes to use computer. Both males and females were responded more significantly in all the ten computer ability items prepared by the
investigator. But, overall males were found to have more positive attitudes than females regarding the intentions to use computer.

Lowerson, Gretchen., Sclater, Jermifer., Schmid, Richard.F., & Philip. C. Abrami. (2006) published a research article on ‘Student Perceived Effectiveness of Computer Technology use in Post-secondary Classrooms’. The main objectives of the study were to study whether the quality and quantity of using computer were related to students’ learning experiences and whether those learning experiences had any relation with students’ overall effectiveness of learning computer or not, to study whether the quality and quantity of computer use were related to the used leaning strategies at various courses of computer and students’ overall effectiveness or not, to study the quality and quantity of computer use and instructional techniques used in the course and students’ overall effectiveness or not and to study whether the quality and quantity of computer use had any relation with personal computer use and students’ overall effectiveness or not.

The study was conducted on 922 students in 51 courses at both undergraduate and graduate levels studying at various universities of Canada during 2002-03. Descriptive survey method was used by the investigators. A self-developed questionnaire was used for data collection. The major findings of the study revealed that no significant difference was between perceived effectiveness of using computer by the instructor and the global course evaluations. Students mainly used computer for communicative, presentation and accessibility purposes. No significant relationship was found between the amount of computer use by the
instructors and students’ perceptions of effectiveness of the course. Personal computer use by the students facilitated their learning and ratings of global course evaluation were increased.

**Evangelos, Bebetsos., & Panagiotis, Antoniou.** (2008) in their study with the objective to find out the differences in the attitude of students towards Computer Education and their involvement in physical activities. 165 freshmen university students of the University of Barcelona, out of which 93 were males and 72 were females. To collect the data, the investigators used ‘Computer Attitude Scale’ by Sewyn, 1997. The major findings of the study revealed that significant difference was found between the attitude of male and female students towards the subject of computer. Males had more favourable attitude than their female counterparts. Differences were found between the involvement of students in computer and physical activities. Students involved themselves more in computer than physical activities.

**Fancovicova, Jana., & Prokop, Pavol.** (2008) made a study on ‘Students’ Attitudes towards Computer use in Slovakia’. The main objectives of the study were to know whether attitudes towards computer had any relation with availability of computers at school or not and to study what was the difference between the use of computer at home and school. The samples constituted of 214 elementary school students of various parts of Slovakia. A self-developed questionnaire was used by the investigators for collecting data. The study concluded that students had favourable attitudes towards computer. Moreover, no significant difference was
there in use of computer in school between PC owners and non PC owners. But, significant difference was found among students’ uses of computer at school and home. Students specially used computer at home for playing games.

Al- Khadesh, Husan and Al- Beshtawl, Sulieman. (2009) published a research paper on ‘Attitudes towards Learning Accounting by Computers: The Impact on Perceived Skills’. The main objectives of the paper were to study the attitudes of students towards computer, to study the gender difference in attitudes of students towards computer, to study if any value added in students’ computer skills after studying an introductory computer course and to study whether accounting students had any previous computer experience or not. The study was conducted on 200 undergraduate students enrolled in an introductory course in accounting that offered computer skills in Jordanian universities.

It was a survey-based study and the investigators used a modified version of the adopted ‘Bath County Computer Attitude Scale’ of some attitude and experience related questions by Qureshi and Hoppel, 1995 and Lowe and Krahn, 1989. The major findings of the paper revealed that students had favourable attitude towards computer. There was no significant difference in the attitudes of students towards computer based on gender. Students’ attitudes towards the value added of studying computer skills in accounting were very strong. That is, the computer course was very beneficial for the accounting students. Moreover, the students reported a very close relation between the present study and computer. So, students had previous experiences of computer using for games, data entry, word processing etc, but very
few of them had used it for preparing spreadsheet, statistical analysis etc before joining college though those were very important for accounting students.

**Khan, Farida and Iyer, Sridhar.** (2009) made a study on ‘Computer Attitude and Fluency: A Study of Elementary School Students’ with the aim to know the attitudes of students towards computer and accordingly to suggest guidelines to increase the computer fluency by taking 45 students from grades III, IV and V.

It was found that implementation of Computer Education helped to develop positive attitude towards computer. Thus, students showed positive attitude towards Computer Education. It suggested that in order to build computer fluency, it was essential to nurture positive affect towards computer along with building conceptual understanding and skills of students.

**Kirmani, Mubina, H.et.al.** (2009) discussed how various factors worked to create gender differences regarding use of computer. They found out two major factors like child’s social orientation and media as well as educational materials responsible for that. The social orientation factors included exposure to gender related roles, expectations, attitudes etc. Children by observing day-to-day activities by using computers and the division between male and female in the amount of work done etc developed their attitudes towards computer. Similarly, the type of encouragement they got to enhance the confidence to use computer from parents and teachers also helped in developing positive attitudes. Similarly, the computer games, commercial advertisements, assignment of gender specific roles etc all helped to increase gender stereotypes.
Tekinarslan, Erkan. (2009) made a survey titled ‘Turkish University Students’ perceptions of the World Wide Web as a Learning Tool: An Investigation based on Gender, Socio-economic status and Web experience’ by taking 741 Turkish undergraduate students as samples. The purpose of the study were to find out how the students use WWW and internet, the differences if any regarding their uses based on gender, socio-economic status etc.

The results showed that mostly the Turkish males used WWW for shopping, software downloading, news reading etc. Students from lower socio-economic standards in terms of monthly family incomes showed significantly lower attitudes on the self-efficacy sub-scale. The PC-owner students, who used internet more frequently had significantly higher attitudes on the usefulness, self-efficacy and affective sub-scales than non PC-owners.

Kubiatko, Milan. et al. (2010) in the study on ‘Slovak High School Students’ Attitude towards Computers’ formulated objectives like to study the Slovak students’ attitude towards computer and to study whether gender affected to enjoy and create anxiety towards using computer. The samples were 659 students from 14 Slovak high schools. The investigator used a questionnaire having Likert type items for collecting data.

The study resulted that girls got greater pleasure from the use of computer for work or in leisure activities. Almost all students agreed with the statement that computers were very useful for finding out information. More than 90% students did not consider computer boring. More than half of the respondents would like to
use computers. More than half of the respondents liked to work alone on computer rather than with other school mates, still a substantial number (25%) preferred to work on computers with somebody else. Many students (83%) did not consider computers very demanding; a small group of students consider computers difficult to use.

**Sarfo, F. Amartis, Alex.** (2011) with the objectives to know the attitude of students towards computer and to study the differences in gender regarding the attitudes towards computer. The study was conducted on 324 students of two urban and two rural schools of Ghana. A six-point Likert-type sale was used for collecting data.

The study revealed students’ positive attitude towards computer. Between the attitude of male and female students towards computer, there was no significant difference. Male students from rural areas showed more positivity in their attitude regarding the use of computer for teaching-learning than the rural female students. But, in general there was no significant difference in the attitudes of students of rural and urban areas regarding the use of computer for teaching–learning purpose.

**Carol, Y. Ashong. & Nannette. E. Commander.** (2012) in the study on ‘Ethnicity, Gender and Perceptions of Online Learning in Higher Education’ formulated objectives like did students generally have positive perceptions of online learning, was there a significant differences in males’ and females’ perceptions of online learning etc. The participants were 120 undergraduate and graduate students enrolled in online courses during the year 2011-2012 academic years in U.S. For the
study, the investigators conducted online survey. The results of the study indicated high positive perception towards online learning irrespective of ethnicity and gender. African-American students reported low positive perception than Whites towards online learning courses. The females had more positive perception than the males.

**Miller, Bobby.** (2012) in an article named, ‘Boys and Girls :Gender Differences in Technology’ where he discussed some issues like gender differences in everyday use of internet, gender usage of social networking sites, use of new technological gadgets etc. According to him, depending upon factors like education, race, income, age, marital status etc determined how male and female used technology like computer. Moreover, as females used to be more social by nature, so females’ used of social networking sites were more than males. Similarly, males were more adaptive to use new technological gadgets than females.

**Smith, Kathleen. R.** (2012) in his research article, ‘College Students’ Perceptions of Aptitude and Attitude toward Social Media Technology and Technical Computer Technology’ mentioned the main objectives like to study the perceived social and technical computer aptitude of students of various ages, genders, ethnicities and academic majors, to study the attitudes of students towards computer and to study the significant differences between the social and technical perceptions of computer competencies. The study was conducted through descriptive survey method. The sample constituted 1052 college undergraduate
students of various universities of USA. Students were selected through purposive sampling technique. A Liker-type attitude scale was used to gather data.

The study concluded that the perceived social and technical computer aptitude of college students were found to be based on gender; age had a significant effect on the social aptitude towards computer technology, but no significant effect was there regarding age on the technical computer aptitude; students had a positive attitude towards computer technology and there was a positive correlation found between social and technical computer aptitude of students.

**Abedalaziz, Nabeel et.al.** (2013) conducted a study on ‘Measuring Attitude towards Computer and Internet usage among Post-graduate Students in Malaysia’ with the objectives like to find out the relation of post graduate students’ attitude in relation to gender, to find out whether there was any relation regarding the post graduate student’ attitude and ethnicity, to find out whether post graduate students’ attitude was related to age etc, by taking 289 post graduate students of University of Malaya. The study was conducted by applying a Computer Attitude scale and one Internet Attitude scale.

The study concluded that the participants had moderate level of perception regarding their attitude towards computers and intention to use it. On the other hand, the participants had a moderate level of feelings and anxiety when using the internet. The youngest participants significantly scored higher than the participants in the other groups.
Ghafoor, Muhammad.et.al. (2013) in a research article, ‘Attitudes towards Computer Learning: A case study of public and Private sector institutions’ mentioned the main objectives like to study the attitude of students towards computer-based learning and to study the differences in attitudes between the public and private sector institutions’ students towards computer-based learning. The study was conducted on 150 students of public and private institutions of Pakistan by using simple random sampling technique. A pre-administered scale by Loyd and Gressard, 1984 was used for data collection.

From the study, the authors concluded that learning computing skills, concepts and programming in various computer introductory courses did not contribute significantly to form attitude of students towards computer technology; in the public sector institutions, students were more inclined towards learning computer than private and the level of satisfaction of students of public sector institutions was seen to increase than the students of private institutions.

Amal, Rhema. & Iwona, Miliszewska. (2014) in the study titled ‘Analysis of student attitude towards E-learning: The case of engineering students in Libya’ formulated objectives like to study the overall attitude of students towards technology, to study the significant differences in attitude towards technology between urban and rural students by taking 348 undergraduate engineering students as sample. For the study, the investigators used descriptive survey method.

The results of the study showed that all the participant students had positive attitude towards ICT and e-learning. They felt confident in using computers,
enjoyed using ICT in their studies, believed in the benefits of e-learning and would give them appropriate opportunity to acquire new knowledge and enhance their learning experiences. Regarding the differences, the male students showed more positive attitude. However, in urban group, female students showed more positive attitude than male students. On the whole, urban students showed positive attitude more than their rural counterparts.

Hon, Keung, Yau.et.al. (2014) made a study on ‘Gender Differences of confidence in using Technology for Learning’ by taking 250 university students of Hong Kong by using convenient sampling technique. It had the objectives like to study the differences among male and female students’ confidence in using technology for learning in Hong Kong higher education etc. The investigators used a self-structured questionnaire for collecting data.

The findings of the study showed that male students were more confident in using technology for learning. Both male and female students liked to learn to use technology. That particular university provided learners proper and sufficient educational technology on campus including computers, laptops, software etc. Moreover, students used technology daily, thus building their confidence in the use of technology for learning.

Martin, Gabriela. (2014) conducted a survey and later on published as a research article, ‘Differences in perception of Computer Sciences and Informatics due to gender and experience’. The main objective of conducting the survey was to find out differences in perception between male and female students towards
computer. The investigator by applying simple random sampling method selected 179 university students for the study. A self-structured questionnaire was used for data collection.

The study concluded that male students were more confident and considered themselves better in choosing Computer Science as a subject than the female students; female students showed lower self-esteem and self-confidence in selecting a career in Computer Science than male students; significant difference was found between graduate and undergraduate students regarding motivation for selecting Computer Science and the first year undergraduate female showed more interest in taking views from parents, teachers etc than other students in choosing computer Science as a subject.

Opoku, Mustapha. Osman. & Kuranchie, Alfred. (2014) conducted a study on ‘Undergraduate students’ Attitude towards Computer Education: A Survey of SHS in the Sunyani Municipality’ with the objectives like to study how long students had access to computers, to study the general attitudes of students towards ICT education, to study gender disparity in the attitudes of students towards ICT education and to know students’ views of ICT teachers’ treatment of the gender groups. The study was conducted on 340 students (170 boys and 170 girls) of Rome and they were selected using stratified random sampling technique. Data were collected by using a self-developed questionnaire.

The study observed that more than half of the students did not have access to computers at home and they used computers outside home like internet cafes, school
computer laboratories etc and so the chances of continuous computer uses were limited. About 90% students possessed favourable attitudes towards ICT education; students loved to use computers for study. Although students overall had favourable attitude towards ICT education, but there existed no significant difference between the attitudes of male and female students, females had more favourable attitude than male students.

Sabti, Ahmed. & Chaichan, Sami.Rasha. (2014) studied on ‘Saudi high school students’ attitudes and barriers in using of computer for learning English’ with the objectives to explore EFL students’ attitudes towards e-learning integration and the perceived barriers encountered by them in learning English at the public schools of Saudi Arabia.

Their results revealed that both male and female participants showed higher tendency to use more technological tools in their schools. Although male and female participants showed high attitudes, female students’ percentage was higher than their male counterparts. Three barriers were detected that affected Saudi Arabia students’ usage of technology in learning English namely equipment, motivation and skill.

2.2 Studies conducted in India

Apart from the studies conducted abroad, there were some studies related to the various aspects of the present study conducted in India. Some of those studies are mentioned below.
Padma, M.S and Chakraborty, P. (1990) studied on the attitude of high school students of Shillong towards Computer Education and also tried to find out if any difference existed between the attitudes of tribal and non-tribal students towards the same.

The results of the study showed existence of significant differences between the attitudes of boys and girls towards Computer Education. Girls were found more aware of the technological progress and innovations of the present age than boys. It further concluded that there was no difference existed between tribal and non-tribal students’ attitudes towards Computer Education.

Jeyamani, P. (1991) in the study on ‘Effectiveness of the stimulation model of teaching through CAI’ with the objectives to find out the effectiveness of stimulation model of teaching as compared to the traditional method and to utilize the growing use of computer in education by taking samples from Avinashilingam Institute of Home Science and Higher Education for Women in Coimbatore.

The study revealed that there was no significant difference in learning level between Tamil medium and English medium students. On the basis of the research findings, it was concluded that the experimental group performed significantly well than the control group.

Sahasrabudhe. (1994) studied the programme of Computer Education in the secondary schools of Baroda city with the objectives to know the current status, organization pattern and perception of teachers and students towards Computer
Education. 20 schools of Baroda were selected for that purpose and it made use of information schedule and questionnaire for collecting data.

The study revealed that Principals of secondary schools had positive perception towards Computer Education and most of them wished to make it a compulsory subject. Most of the schools provided computer Education as a compulsory subject of the daily routine. Most of the schools provided Computer Education as privately managed programme and there was no organizational problem found in imparting the same.

Ansari. (1998) undertook a study to know the status of Computer Education in the secondary schools of Navsari block of Gujarat. The study covered seven secondary schools and the sample constituted of 563 students. In order to collect data, opinionnaire and interview schedule were used.

The study found that in general, students understood Computer Education easily and they had positive attitude towards it. No significant difference existed between the students regarding their perceptionS towards Computer Education. They were satisfied with the facilities of the schools for providing Computer Education.

Czajal, Sara J. & Shark, Joseph. (1998) published a research article on ‘Age differences in attitudes toward computers’ with the objective to know whether age had any effect on the attitude towards computer. The study was done by taking samples of a total of 384 including 163 men and 221 women ranging in age from 20-75 years.
It was revealed by the study that there existed close relationship among age, gender, and computer task characteristics and thus attitudes were found varied depending upon those three factors. It also highlighted the fact that gaining experience with computers increased the feelings of participants regarding comfort to handle technology, competence to use computers, and developing a kind of feeling that computers were useful.

Gupta, Sanjay M. (2004) conducted a study with the objective to know the current status of Computer Education along with the problems in the same in Baroda district of Gujarat. By using purposive sampling technique, the investigator selected 40 various institutions across Baroda. The study made use of survey method. The investigator made use of self-developed questionnaire, classroom observation schedule and interview schedule of collecting data.

The study concluded that the role of Government in the field of Computer Education was negligible in Baroda. Only 25% of the total institutions providing Computer education in Baroda constituted for Government institutions. Teachers of Computer Education were less paid than other teachers and most of the teachers of Computer Education were not trained in pedagogy of teaching.

Mitra, A. (1998) published an abstract on ‘Categories of computer use and their relationship with attitude towards computers’ with the objective of to know the various uses of computer by the students and their relationship with attitude towards computer.
The results indicated that students used computer for different purposes. Word processing was found to be the more used application of computer. Similarly, students very frequently did e-mailing by using computer and no mathematical and statistical activities were found to be done by using it. The respondents who used computers more frequently showed positive attitude towards computer than those who used less frequently. So, the study showed the fact that students’ attitude towards computer was related to its use.

Khunyakari, Ritesh., Mehrotra, Swati., Natarajan, Chitra., & Chunawala, Sugra. (2000) studied on ‘Indian middle school students’ attitudes towards technology’. The investigators selected a total 644 students from 13-14 years of age of various urban and rural schools of Maharashtra. A self-developed questionnaire was used for the purpose of data collection.

It concluded that urban students exhibited greater number of ideas about technology than rural students. Students as a whole showed positive attitude towards technology and as it was important for fulfilling their future career. A greater portion of girls considered technology important as it helped in study and increased the work pace.

Rinsa, P, V. & Nasuma, C. (2014) made a study on ‘Using computers for learning Mathematics-perception of higher secondary school students’. The main objectives of the study were to know the perception of higher secondary school students in using computer for learning Mathematics, to study the level of perception of boys and girls in using computer for learning Mathematics and to
know whether students of Science and Humanities differed in their perception in using computer for learning Mathematics. For the study, the investigators took 100 boys and 100 girls of Malappuram district, Kerala. A self-developed computer perception scale was used for data collection.

The findings of the study showed that 40% students showed high, 33.5% average and 26.5% showed low perception towards computer for learning Mathematics. The percentage of girls showing high perception was more than the boys. The students of Science showed high perception than the students of Humanities towards computer in learning Mathematics.

**Teo, Timothy.** (2006) studied on ‘Factors affecting gender differences in attitudes towards computers among students’. The main aim of the study was to discuss some of the factors contributing gender differences in the attitude towards computer among students.

It discussed about the stereotyped computer attitudes in case of women towards computer occurred because of the belief that computing field always proved fit for men only and it helped to decease women’s confidence to handle computer and to choose a career in Computer Science. The more time spent on computer by men also helped to increase their confidence to go in that line and it gave them an exposure to computers, resulting the development of a positive attitude. Moreover, it was found that computer anxiety developed as a result of having negative attitude towards the same. The investigator forwarded various implications from the findings like time exposure, selection of contents, instilling confidence in students
etc to develop positive attitude towards computer as well as to take Computer Science as a career.

Kay, Robin. (2007) in the study on ‘Gender differences in computer attitudes, ability and use in the elementary classroom’ found that for the past few years, significant gender differences had been observed regarding computer attitudes, ability and use. Those observations indicated that males were more confident than the females. Therefore, the teachers should try to minimize those gender differences and girls should be encouraged to improve computer confidence by using methods like creating co-operative learning activities, providing structured computer-based activities etc.

Singh, Jaspal. (2008) in the research article on ‘Perception of secondary school students towards Computer Education’ mentioned the main objectives viz., to study the perception of secondary school students towards Computer Education, to study the significant difference in perception between male and female students towards Computer Education, to study the significant difference in perception between Science and Humanities students towards Computer Education, to study the significant difference in perception between male and female students of Humanities towards Computer Education and to study the significant difference in perception between male and female students of Science towards the same. The study was conducted on 200 students (100 males and 100 females). Convenient sampling was used for selecting the schools. To collect data, a Likert-type five point scale was applied by the investigator.
The study concluded that secondary school students had favourable perception towards Computer Education, significant difference was also found between the of male and female students’ perceptions towards the same. Moreover, it also revealed significant difference between the perceptions of male and female students of Science stream towards Computer Education. It also found significant difference between the perceptions of male and female students of Humanities group towards Computer Education. Again significant difference was revealed between the perceptions of students of Science and Humanities group towards Computer Education.

Jonson, Jomy. (2009) studied on ‘Use of Computer among Higher Secondary Students as related with their achievement in Computer Science’ with the objectives to find out the use of computer and its relation to students’ achievement in Computer Science, to find out the use of computer and its association to students’ achievement in Computer Science, to study the significant difference between sub-samples of students regarding how they used computer and their achievement in Computer Science as well as to study the levels of achievement in Computer Science among students and how they used it. The study was conducted on 802 students studying in various higher secondary schools in the Thrissur district, Kerala. Out of 802 students, 400 were males and the rest were females. Cluster sampling technique was used to select the sample students. The investigator used a self-developed scale for collecting data. Besides, students’ achievements in Computer Science were taken into consideration.
The results of the study showed that there was no significant relationship between uses of computer and achievement in Computer Science. There was significant association between use of computer and achievement in Computer Science. Significant difference was found between male and female students regarding the use of computer and compared to females, males better used computer. Also, significant difference was there regarding the use of computer between the students of Arts and Science steams and students of Arts stream better used computer. Students those having home computers better used computer than those did not have. No significant difference was found between the students of rural and urban areas regarding the use of computer.

**Padma, R.** (2010) conducted a study on ‘Use of computer among accountancy students at higher education’. The study was conducted with the objectives to study the significant differences in attitudes between male and female students regarding the use of computer, to study the significant differences in the use of computer among students studying in Government colleges, Government aided colleges and self financing colleges, to study the significant differences in the use of computer between male and female students of co-educational colleges.

The findings of the study revealed that there was a significant difference in the use of computer between male and female students and male students used it more frequently than females. There was no significant difference found in the use of computer between accountancy students studying in Government, Government-
aided and self-financing colleges. Also, there was no significant difference found in
the use of computer between male and female students of co-educational colleges.

Taj, Haseen. (2011) remarked that greater exposure to computers and their
applications would help students to take Computer Education as a subject in near
future. Therefore, it suggested that Computer Education should be introduced right
from primary level. Proper exposure to computers would further help students to
form proper attitude towards computer and Computer Education.

Yadav, Saroj. & Singh, Shiv.Veer. (2011) made a comparative study on
‘Social Competence and Attitude towards Computer among undergraduate
students’. The main objectives of the study were to compare the undergraduate male
and female students’ computer attitude, to compare the computer attitude and the
social competence of undergraduate urban and rural students and to compare the
attitude towards computer of undergraduate urban and rural students. The study was
conducted on 320 undergraduate students (160 male and 160 female) of rural and
urban areas of Kanpur in Uttar Pradesh. The samples were selected by adopting
simple random technique. The data were collected by using Dr.Sharma, Shukla and
Shukla’s Social Competence Scale and Dr. Tahira Khatoon and Monika Shrama’s
Computer Attitude Scale. Descriptive survey method was applied for the study.

The study concluded that there existed significant difference in the social
competence of using computer among undergraduate male and female students. The
social competence of undergraduate male students was more than the female
students. There was significant difference in the social competence of using

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computer between undergraduate rural and urban groups. The social competence of undergraduate urban students was more than their rural counterparts. There was no significant difference between the attitudes of undergraduate male and female students towards computer. It found significant difference between the attitudes of undergraduate urban and rural students towards computer. The urban students showed favourable attitude than rural students.

**Vidyageetha, N. & Padma, B.** (2012) made a study on ‘Higher secondary Students’ achievement in Computer Science and their attitude towards computer’. The main objectives of the study were to study the class XI students’ level of achievement in Computer Science, to study the significant difference between sub-samples of the students in achievement in Computer Science, to study the level of attitude of class XI students towards computer, to study the significant difference between sub-samples of students in their computer attitude and to study the relationship existed between students’ computer achievement and computer attitude. The investigators took a sample of 855 higher secondary first year students of Thanjavur district of Tamil Nadu, by adopting simple random sampling method. For collecting data, two tools were used namely, ‘Achievement Test in Computer Science’ developed by the investigators and ‘Attitude Scale’ constructed and validated by Kumaran, D and Selvaraj, K. (1997).

The major findings revealed that majority of the students showed an average level of achievements in Computer Science. There existed significant differenceS in the computer attitude of students of Arts and Science groups. The students of Arts
group showed favourable attitude towards computer than students of Science group. There existed significant difference between male and female students’ computer attitude, females had more favourable attitude than males. Significant difference was found between the students of urban and rural areas regarding their computer attitude, rural students showed more favourable attitude than the urban students. Students studying in Government schools showed favourable attitude than students of private schools in their attitude towards computer. Significant difference was found between the students stayed in hostels and day-scholars. The hostellers showed more favourable attitude towards computer. Also, significant difference was found between the students having personal computer and those did not have regarding their computer attitude. Moreover, students having personal computer showed more favourable attitude. Favourable attitude towards computer had great impact in the academic achievement of students related to Computer Educaion.

**Bihari, Saket.** (2013) conducted a study on ‘Gender difference in computer attitude among secondary school students in North-West Delhi’ with the objectives to find out whether boys and girls had the same kind of attitudes towards computer as well as what were their individual attitudes towards the same by taking 200 samples from secondary schools across Delhi.

The study revealed that there was no significant difference between the two groups in their attitudes towards computer. Significant difference was found between the attitudes of boys and girls regarding their anxiety to use computer and boys were found more anxious to use it than girls.
Sharma, Hemant Lata et.al. (2013) in their study on ‘Attitude towards Computer Education among senior secondary level students regarding gender, locality and academic stream’ and the sample was 200 students. They found that there was no significant gender difference on the attitude towards Computer Education among senior secondary school students. It showed that boys and girls had same perception regarding Computer Education. Another finding of that study revealed that there was no significant locality difference on the attitude towards Computer Education among senior secondary students.

Suri, Gunamala and Sharma, Sneha. (2013) studied on ‘The impact of gender on attitude towards technology and E-learning: An exploratory study of Punjab University, India’ with the objectives to study the effect of gender on computer and E-learning and the attitude of students towards computer and E-learning. The study was conducted on 500 students of Punjab University. For collecting data, an attitude scale, ‘The Attitude towards Computer Instrument’ by Shaft et.al. (2004) was used.

The study concluded that the students were well -versed with computer and latest e-learning tools. Gender had no impact on students’ attitude towards computer and e-learning. Students had favourable attitude towards computer and e-learning.

Jali, Pramod., K,Singh. Shamsher., Babaji, Prashant.Chaurasia., Vishwajit, Somasundaram., & P, Lau.Himani. (2014) conducted a study with the objectives to study how students used computer, to study the knowledge of students about internet and to study the attitude of students towards computer and internet.
For the study, the investigators took a sample of 340 undergraduate dental students selected through purposive sampling during the session 2011-12. The study was conducted by a self-developed close-ended questionnaire.

The results of the study revealed that good number (94.4%) of students had knowledge of computer and among them some had access to home computer and some had not. Students used computer for many purposes like general, entertainment and research. Students possessed knowledge of internet and they used it for web-browsing, e-mailing and research activities. Most of the students liked to use computer for educational purpose and preferred computer-based programmes in curriculum. Overall, students had favourable attitudes towards internet.

Navaneetakrishna, N. (2014) made a study on ‘Attitude towards computer among teacher trainees’. The main objectives of the study were to study the level of attitude towards computer among teacher trainees and to study the significant difference between Government and Private institutions’ teacher trainees regarding their attitude towards computer. Normative survey method was applied by the investigator. The samples for the study were 400 D.T.Ed teacher trainees from teacher training institutions located in Cuddalore district, Tamil Nadu. For selection of sample, simple random sampling method was applied. The investigator used self-developed personal data sheets and a computer attitude scale developed by Kumaran and Selvaraj (1997) for data collection.

The results of the study showed that teacher trainees had moderate level of attitude towards computer. Significant difference was there between the attitude of
Government and Private school teacher trainees towards computer. Compared to the trainers of Private schools, the Government schools’ teacher trainees showed favourable attitude towards computer.

**Pandey, Pranay.** (2016) conducted a study to know the XI standard students’ attitude towards computer as well as their achievements in computer application. 200 students from four districts of West Bengal were selected for the study by employing simple random sampling technique. The study made use of descriptive survey method. For collecting data it used an attitude scale and an achievement test.

The study revealed that attitude towards computer did not vary significantly with gender, location and discipline. It found average type of attitude of students towards computer. Moreover, it showed a high positive correlation between computer attitude and computer achievement.

**Salako, Emmanuel. Adekanle.** (2016) conducted a study on the perception of students towards computer education. The objectives of the study were to know the perception of students as well as to know the differences if any between male and female students towards Computer Education. By using simple random sampling technique, the investigator selected 7500 students from 100 private and 50 public secondary schools of Nigeria. For collecting data, it used a self-developed questionnaire.

The results of the study showed that the number of students having positive perception were more than those showing negative perception. Moreover, the means of male and female students were statistically insignificant and there existed no
significant difference in the perception of male and female students towards Computer Education.

### 2.3 Studies conducted in Assam

Most of the studies about students’ perception and attitude towards computer education were conducted abroad and within India. So, a very few studies were conducted within the state of Assam, especially on college students. Still among the very few, some of them were mentioned below.

**Das, Indrani.** (2003) studied about computer education in the Secondary Schools of Assam formulated the objectives like understanding the attitude of students and teachers towards computer education, assessing the gender disparities in Computer Education, finding out differences in computer education between Assamese medium and English medium students etc. The study was done by taking 490 high school students and 16 teachers.

The study showed that students had more positivity in attitude regarding computer enjoyment, girls’ attitude towards computer were more favourable than boys, English medium students were more confident and had favourable attitude than the Assamese medium students, teachers had positive attitude towards computer than students etc.

**Bora, Talukdar. Daisy.** (2014) made a survey and concluded that more than 23% of students had been using computer for more than three years. A good number of school students were interested to use computer both at school and in home. They also showed positive attitude towards it as well as interested to learn computer
education in future. They liked to attend the classes of computer more than other subjects.

Borah, Samikha. (2015) made a study to know the problems of computer education in secondary level of Suwalkuchi block of Kamrup district. The objectives of the study were to study students’ attitude towards Computer Education at secondary level and to study the problems of Computer Education. The investigator took a sample of 8 secondary schools for the study. For conducting the study, the investigator used one self-developed questionnaire and interview schedule.

The study showed that all the students used computer at school. 80% students had computer at home also. Students showed positive attitude towards computer. Some of the problems faced by students were non-availability of sufficient computers at schools, shortage of teachers, lack of reading materials, lack of proper sitting arrangement, problem of laboratory etc.

2.4 Resume of the reviews of related literatures

From the above reviews, it was observed that a number of research studies were conducted at international, national and a very few at regional level. A total number of sixty eight (68) reviews have been done at international level, twenty four (24) at national and four (4) at regional level. After making reviews of related literature, the following generalizations were emerged.
A) These studies highlighted various facts about attitude and perception of students of different categories viz., primary, secondary and higher towards Computer Education.

B) It was also observed that some studies in the field of students’ computer perception and attitude were conducted by using standardized tests and scales, while some others with questionnaires and interview schedules.

C) Many studies were based upon the differences among students in computer attitude and perception. Those differences were found regarding gender, age, locality, stream and so on.

D) Another most important fact was that in comparison to studies conducted on students’ attitude towards computer education, studies regarding students’ perception towards computer education were less in number.

E) Though, a number of studies were conducted on students’ perception and attitude towards computer education, but no significant reference was found on perception of students towards computer education in Assam as well as Nagaon district.

F) Most of the studies were conducted on the students of school level and less on students of higher education. Therefore, the investigator made an attempt to conduct the present study in order to fill the gap of research. The investigator found from the findings of the studies reviewed for providing necessary scope to pursue the present study.